

# Clues of the Past!

## Elementary Science, Grade 4

**TEKS: Recurring Theme Concepts (RTCs) 4.5ABDFG (patterns, parts & function, cause & effect, relationship, stability & change) SEPS 4.1A, 4.1CDEF, 4.3AB, 4.4A; [4.11AB, 4.12C Science](#); [4.8B Social Studies](#)**

**Phenomena (Big Idea):** Earth's surface is constantly changing and it contains resources that are renewable, such as water, or nonrenewable, such as coal, which must be conserved for future generations.

### Objectives:

**Part I:** Students will observe and identify various resources found on South Texas Ancient Landscapes dated back from the Eocene period (56-34 million years ago) by using scientific tools to gather observational properties.

**Part II:** Students will identify and describe fossils and tools found on the Earth's surface dating back to the Oligocene period (34-23 million years ago). Students will use modern-day scientific tools and predict how they were used then and how Native Americans have had to adapt / modify their ways of life to the ever changing environment.

### Duration

**Part I:** 30 minutes

**Part II:** 25 minutes

### Vocabulary [Quizlet- Clues to the Past](#)

Sandstone, alluvium, volcanic ash, limestone, microscope, hand lens, petrified wood, arrowheads

### Materials

**Samples of:** Volcanic ash, sand stone, mudstone, silt/ sand, petrified wood, arrow head (replica)

**Tools: *Foldscope instrument bag*** (hand lens, paper microscope, vials, q-tips, tape, round magnets, tweezers, glass slides / container

### Teacher Background:

**Concept 1:** The Earth's surface is made up of renewable and nonrenewable resources that exist naturally on Earth and are used by all living things for their basic needs (food, water, shelter). These resources are replaced within their lifetime (renewable) or once used, they can never be used again (nonrenewable). Renewable resources go through a cycle and are mainly found above ground such as plants, animals, wind, sunlight. Nonrenewable resources are found below ground where they need to be excavated and go through a long process of being created through heat, pressure, compression, compaction. They are also known as fossil fuels; oil, coal and natural gas.

**Concept 2:** Conservation is the responsibility of humans to reduce, reuse, or recycle the Earth's natural resources in order to retain them for future generations. Native Americans have adapted and modified their way of life for the care of these resources by using the most out of the products found on Earth without creating pollution.

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## Lesson Activity I [How to use a Foldscope, Clues to the Past Part I pppst](#)

Students will view maps of the South Texas Ancient Landscapes. They will then pinpoint where the soil samples were extracted based on the map key. Then they will obtain a 1.0 ml sample of each (volcanic ash, sandstone, salt, Alluvium mudstone, and alluvium silt/sand) and place inside the plastic vial containers. Next students will use a Q-tip to extract /obtain a sample of each and place it on top of a piece of tape. They will then pace the piece of tape onto their paper microscope and start their observational properties.

Sample	Color Gray, black, light brown, brown, dark brown)	Particle Size (compare to each other: Xsmall, small, medium, large, XL)	Texture (smooth, gritty, sticky, wet, dry)	Ball clump (won't stick, sticky, falls apart)	Microscopic diagram (Draw as it appears)
Example	Light brown	Medium; larger than A,B	gritty	Falls apart when water is added	
A					
B					
C					
D					

## Lesson Activity II [Clues to the Past part II pppst](#)

**Fossils / Tools:** Students will view a short clip of the different types of arrowheads found throughout Texas. Students will then identify the time period of when the arrowheads were used to the arrowheads found in South Texas. Students will then identify the types of arrowheads found to the ones on the poster. After hunting and using their arrowheads to gather supplies and meet their basic needs, how did Native Americans conserve the resources?

Arrowhead	Poster (add name of arrowhead here)	How did Native Americans conserve the resources
Example	Hidalgo- catch fish	Used fish parts as needles to sew moccasins
A		
B		
C		

**Short Assessment / Closing:** [Exit Ticket- Clues to the Past Google Form](#) After close observation of the different types of resources found in South Texas, the soils found near Roma compared to the soils found near Boca Chica, we can conclude that \_\_\_\_\_. The arrowheads found in South Texas show evidence that the Native americans \_\_\_\_\_.

**Further understanding:** [Ancient Landscapes of South Texas PPPst](#)